



**IN THE  
UNITED STATES  
PATENT AND TRADEMARK OFFICE**

**IN RE APPLICATION OF:** Brunotte, et al  
**CASE:** OST-031201  
**SERIAL NO.:** 10/714,573  
**FILED ON:** November 14, 2003  
**FOR:** PROJECTION LENS AND  
MICROLITHOGRAPHIC  
PROJECTION EXPOSURE  
APPARATUS

**STATEMENT OF  
BASIS FOR  
RELEVANCE OF  
FOREIGN  
LANGUAGE  
DOCUMENTS  
IDENTIFIED IN  
SUBMITTED  
SUPPLEMENTAL  
INFORMATION  
DISCLOSURE  
STATEMENT**

COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, VA 22313-1450

**ATTENTION OF:  
  
EXAMINER:**

Dear Sir:

If any charges or fees must be paid in connection with the following communication, they may be paid out of our Deposit Account No. 50-0545.

<u><b>Publication Number</b></u>	<u><b>Publication Date</b></u>	<u><b>Basis for Relevance</b></u>
JP 11-54411	February 26, 1999	A birefringence correcting member is incorporated in an optical system so as to cancel phase variation. Since a material equivalent to the optical glass used for lens elements must be used for the member, and birefringence having a prescribed distribution must be caused through the optical glass, such a phenomenon as the structural birefringence is utilized. Namely, the phase difference between a polarized component in the direction perpendicular to the groove can be set at an arbitrary value, by using a fine diffraction grating indicating the structural birefringence and appropriately selecting the duty ration of the grating and the depths of the grooves.

**FACTOR & LAKE, LTD.**  
1327 W. Washington Blvd., Suite 5 G/H  
Chicago, IL 60607  
(312) 226-1818  
(312) 226-1919 (fax)

<b>Jody L. Factor</b>	<b>34157</b>
<b>Micheal D. Lake</b>	<b>33727</b>
<b>Jacob D. Koering</b>	<b>51890</b>

JP 2000-331927

November 10, 2000

In this projection optical system, a projection optical system having plural lens elements is provided with a birefringence correcting member made of one-axial crystal having a main axis in an optical axial direction and/or materials having distortion distribution equivalent to the one-axial crystal. Thus, birefringence generated by the plural lens elements can be canceled by the birefringence correcting member.

EP 0 961 149

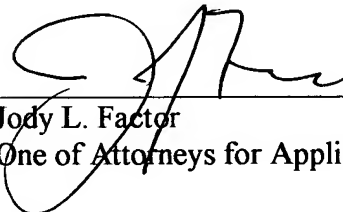
December 1, 1999

A catadioptric projection objective for microlithography with at least one curved mirror that is deformable and adjusting elements that can deform the deformable mirror, in which the adjusting elements are matched to given image errors and their correction. The invention is suitable for astigmatism, fourfold wavefront-deformations due to lens heating, compaction and the like

Should anything further be required, a telephone call to the undersigned at (312) 226-1818 is respectfully invited.

Respectfully submitted,

Dated: 2-24-04

  
\_\_\_\_\_  
Jody L. Factor  
One of Attorneys for Applicant

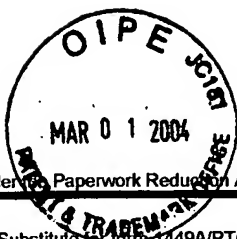
**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Patent Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on 2-24-04.

Jody L. Factor

Name of Applicant, assignee, applicant's attorney or Registered Representative

  
\_\_\_\_\_  
Signature



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Substitute for Form 1449A/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

**Complete if Known**

Application Number	10/714,573
Filing Date	11/14/2003
First Named Inventor	Brunotte et al.
Art Unit	2851
Examiner Name	Not yet assigned
Attorney Docket Number	OST-031201

Sheet 1 of 2

**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>2</sup> (if known)			
		US-6,252,712	06-26-2001	Fürter, et al.	
		US-6,366,404	04-02-2002	Hiraiwa et al.	
		US-6,084,708	07-04-2000	Schuster	
		US-6,201,634	03-13-2001	Sakuma et al.	
		US-2001/0012154	08-09-2001	Schuster	
		US-6,191,880	02-20-2001	Schuster	
		US-2002/0126380	09-12-2002	Schuster	
		US-2001/0008440	07-19-2001	Hummel et al.	
		US-5,805,273	09-08-1998	Unno	
		US-6,307,688	10-23-2001	Merz et al.	
		US-6,285,512	09-04-2001	Sudoh	
		US-2001/0038497	11-08-2001	Sudoh	
		US-2001/0053489	12-20-2001	Dirksen et al.	
		US-2001/0023042	09-20-2001	Dirksen et al.	
		US-6,248,486	06-19-2001	Dirksen et al.	
		US-4,993,823	02-19-1991	Schaffer, Jr. et al.	
		US-5,184,176	02-02-1993	Unno et al.	

**FOREIGN PATENT DOCUMENTS**

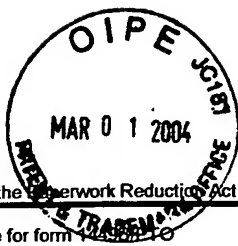
Examiner Initials*	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
		JP 2000-331927	11-30-2002	Cannon Inc.	Pg. 7, col. 1, lines 4-36, Fig. 6, abstract	
		JP 11-54411	02-26-1999	Cannon Inc.	Paragraphs 39, 65, 74 and 75, Fig. 18, abstract	
		EP 0 952 490	10-27-1999	Canon Kabushiki Kaisha	Paragraphs 4256, 59 and 61, Figs 11 and 12	
		EP 0 480 616	04-15-1992	Canon Kabushiki Kaisha	Col. 2, line 28 – line 34 Col. 3, line 19 – line 43 Col. 7, line 57 – Col. 9, line 4, Col 10, line 14 – Col 11, line 18 Figs 4-7	
		EP 0 961 149	12-01-1999	Carl Zeiss	Paragraphs 30 – 32 Fig 1	

Examiner  
SignatureDate  
Considered

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



PTO/SB/08B (06-03)

Approved for use through 06/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		<b>Complete if Known</b>			
		Application Number	10/714,573		
		Filing Date	11/14/2003		
		First Named Inventor	Brunotte et al.		
		Art Unit	2851		
		Examiner Name	Not yet assigned		
Sheet	2	of	2	Attorney Docket Number	OST-031201

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		UNNO, YASUYUKI, "Distorted wave front produced by a high-resolution projection optical system having rotationally symmetric birefringence," Applied Optics, Nov. 1, 1998, pp7241-7247, vol. 37, no. 31 Opt. Soc. America, USA	
		BURNETT, JOHN H., et al, "Intrinsic birefringence in calcium fluoride and barium fluoride," Physical Review B (Condensed Matter and Materials Physics), Dec. 15, 2001, pp. 241102/1-4, vol. 64 no. 24, APS Through AIP, USA	
		BURNETT, JOHN H., et al., "Intrinsic Birefringence in 157nm Materials," International SEMATECH 2 <sup>nd</sup> International Symposium on 157nm Lithography, May 15, 2001, Dana Point, California	
		VAN PESKI, CHRIS, "Birefringence of calcium fluoride," International SEMATECH 2 <sup>nd</sup> zu den Vertretern con Litho. Project Advisory Group May 7, 2001	

Examiner Signature	Date Considered
-----------------------	--------------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.